CRT TERMINALS

INPUT

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CRT
CUSTOM
AUTHOR
Providing CRT Terminals to Third
TITLE
Party Vendors

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PROVIDING CRT TERMINALS TO "THIRD PARTY VENDORS"

PREPARED FOR:

IBM

MARCH 1978

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PROVIDING CRT TERMINALS TO "THIRD PARTY VENDORS"

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PROVIDING CRT TERMINALS TO
"THIRD PARTY VENDORS"

LIST OF EXHIBITS

1 INTRODUCTION

I INTRODUCTION

A. PURPOSE

- It is the intent of this study to analyze the "third party vendors" and their use of non user programmable (teletype compatible) CRT terminals. (See Exhibit I-1.)

- The analysis emphasizes the sales dynamics and characteristics of participants (CRT vendors, third party companies). Terminal features were not emphasized in this analysis.

- During the program interviews, IBM was not identified as the study sponsor, nor was IBM discussed as a possible vendor of teletype compatible CRT terminals.

- The report is similar to the interview program in that:

  - It first discusses the third party firms from the viewpoint of the CRT vendor.

  - It then analyzes the need for teletype compatible terminals from the viewpoint of the third party participant.

EXHIBIT I-1

OBJECTIVES OF THE STUDY

• Determine the characteristics of the "Third Party Vendors" as related to non user programmable (teletype compatible) CRT terminals.
• Determine the terms and conditions which are offered to third parties to maximize terminal sales.
• Determine how third parties operate in the terminal select and purchase cycle.

B. RESEARCH AND METHODOLOGY

- The research program consisted of fifty telephone interviews performed by INPUT senior staff. (See Exhibit I-2.)

- The respondents were cooperative and helpful during the telephone interviews. They were knowledgeable in the areas of information given INPUT. When respondents were not familiar with a particular topic they so stated, and that portion of the questionnaire was left blank.

EXHIBIT I-2

INTERVIEWS

• Interview Performed: - By Senior Staff - By Telephone - About 30 Minutes Duration	Total 50
• Vendors of Terminals - Independent Manufacturers - Major Corporations Providing Terminals	Total 15
• Third Parties - System Houses (OEM) Providing Products - System Houses, Turnkey - Computer Service Companies - Leasing Companies - Distributors	Total 35

II EXECUTIVE SUMMARY

II EXECUTIVE SUMMARY

A. CONCLUSIONS

- The "third party vendors" are divided into the following classes of firms:
  - System houses (OEM) providing products.
  - System houses providing turnkey systems.
  - Computer service firms.
  - Leasing companies.
  - Minicomputer manufacturers who purchase terminals.
- There are about 2,500-3,000 individual firms in this group (see Exhibit II-1), and of these about 500-600 are responsible for 80% of the group's sales.
- In general, these firms (particularly the system houses) are very industry specialized. The small third party firms sell to small companies (users) who also tend to be industry specialized. They mostly use direct salesmen to reach their customers. However, the system houses providing products also use "reps."

EXHIBIT II-1

CONCLUSIONS - THIRD PARTY CHARACTERISTICS OVERVIEW

- Total of 2,500 Individual Firms:
  - Mostly $.25 - $10 million in size.
  - 500-600 responsible for 80% of the sales.
- Customers of Third Parties:
  - Industry specialized - Very.
  - Small third party companies - sell generally to small users.
- Managed By a Few Key People:
  - President is Product Planner.
- Sell Mostly by Direct Salesmen:
  - System houses selling products use some reps.
  - Specialization implies direct sales.
- Use all Vendors as Suppliers:
  - The name of a large vendor does not have special significance for managers of small third party system houses, although it has special significance for computer service firms and leasing companies.

- Third party firms are managed by a few key people who are independent entrepreneurs, and they will utilize all suppliers. Because of this situation, the major supplier's name is not effective in obtaining a higher price over established competition for teletype compatible CRTs, according to the system houses interviewed.

- Senior staff (VP level) and often the presidents of third party firms make the terminal selection decision, usually after receiving committee advice. (See Exhibit II-2.)

- At the present time, vendors or distributors sell terminals via direct sales force. These salesmen are highly motivated by commission, with top salesmen's earnings approaching or exceeding $100,000/year. These salesmen (and their managers) resort to price cutting and other arrangements such as customization when a large sale is involved. (See Exhibit II-3.)

- CRT vendors believe that "terminal stores" and/or computer "hobby stores" (which many believe to be system houses) will be significant in the future as distribution channels for terminals.

- The sales situation has been characterized as "wild" with discounts up to 50% from an inflated list price. There seems to be no standardization of pricing, terms and conditions, and deliverables. It is reasonable to find two different customers paying two different prices for the same deliverables.

EXHIBIT II-2

CONCLUSIONS - THE TERMINAL SELECTION AND PURCHASE CYCLE

• Decisions made by Senior Management and Staff Committee: - Two to six months typical.
• Initial Purchase for Prototypes: - Delivery time under OEM contract 30-90 days.
• Product Design Time Six to Twelve Months.
• Product Life Times Five to Ten Years: - Specialization in application results in long life times.
• Typical Salesmen: - High income up to $100,000. - Commission reward. - Short-term income goals.
• The majority of terminal vendors interviewed believe that "terminal stores" and computer hobby stores/system houses can be significant in the future.

INF

EXHIBIT II-3

CONCLUSIONS - TERMS AND CONDITIONS

- This is a "Wild Environment":
  - Extremely competitive.
- Discounts up to 50% of list price:
  - To meet competition, not to match lower costs or improve benefits to users.
  - No constant policies.
  - Price quantity of 1 (list) grossly inflated.
- Each major sale is a "Deal":
  - Discount and delivery schedules.
  - Customization.
  - Third party financial organizations - at times involved.

III SHIPMENTS OF TELETYPE COMPATIBLE CRTs

III SHIPMENTS OF TELETYPE COMPATIBLE CRTs

A. THIRD PARTY FIRMS

- Shipments of teletype compatible CRTs are shown in Exhibit III-1 for the U.S.

- The following definitions for third party firms were used during interviews and analysis. It should be noted that many firms fit into multiple categories; e.g., a systems house providing products will also sell turnkey systems. However, only the prime product of the firm was used to classify it.

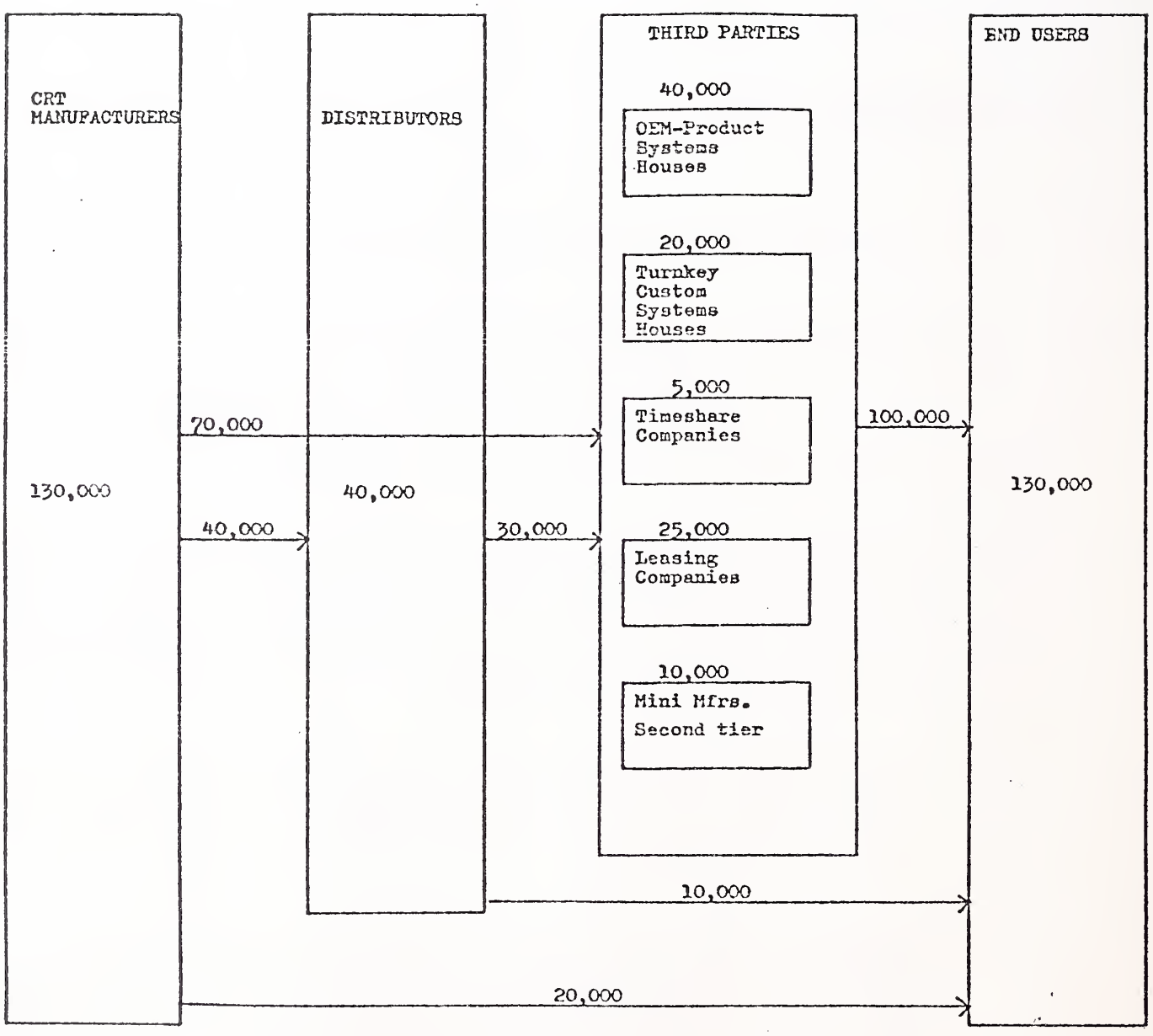
  - System Houses (OEM) Providing Products: These firms assemble products of other vendors into systems (such as small business computers) which they sell as products. They may or may not manufacture some of the components.

  - System Houses Providing Turnkey Systems: These firms assemble a specific system to solve user needs. Each system is in response to a user need or specification.

  - Computer Service Companies: These companies provide solutions to user problems by computer services. However, some of them provide (in conjunction with their services) terminals or small business computers to be used on user premises.

EXHIBIT III-1

CRT TERMINALS SHIPPED IN 1977



- Leasing Companies: These companies obtain CRT terminals and provide them to users under rental or lease arrangements. Usually maintenance is included. Sometimes the terminals are modified by the addition of central control units or magnetic media.

- As shown in Exhibit III-1 system houses (both product and turnkey) were responsible for over half of the CRT shipments to third parties in 1977.

  - The system houses providing products are responsible for twice as much business as those supplying turnkey systems. They are also a "sharper" prospect group with fewer significant firms.

  - The future trend is toward system houses supplying products and away from system houses providing turnkey systems.

  - The system houses providing turnkey systems are a more diffused group of firms. Hobby stores for computers are not included in this group.

  - Many CRT vendor respondents believe that hobby stores are really system houses for the very small business, and that they will be a significant user of CRTs in the future.

- Computer service companies are not yet a major factor in the distribution of CRT terminals. However, there is a trend towards supplying hardware in this industry, and it is expected that they will become a more important factor in the future.

- The terminal leasing companies are divided into national companies, such as Western Union Data Services (which is the largest in the field) and regional companies:

  - The regional companies are responsible for one-half of the terminals leased. They are often dominant in their own region. They generally supply service.

- Leasing companies are and will continue to be a major factor in the distribution of terminals.

B. THIRD PARTY PATHS TO THE USER

- The third party distribution paths for teletype compatible CRTs to the user from the CRT manufacturer other than direct or through a distributor are:

  - System houses (OEM) producing products.

  - System houses providing turnkey system design and delivery.

  - Computer service (timeshare) companies.

  - Leasing companies.

  - Minicomputer manufacturers buying CRTs.

- In 1977, 100,000 teletype compatible CRT terminals reached the user via third parties. The distribution of these paths is shown in Exhibit III-1.

  - In the opinion of the respondents, 100,000 terminals shipped to third parties is about 75% of the total user shipment of 130,000 teletype compatible terminals in 1977 (by all paths).

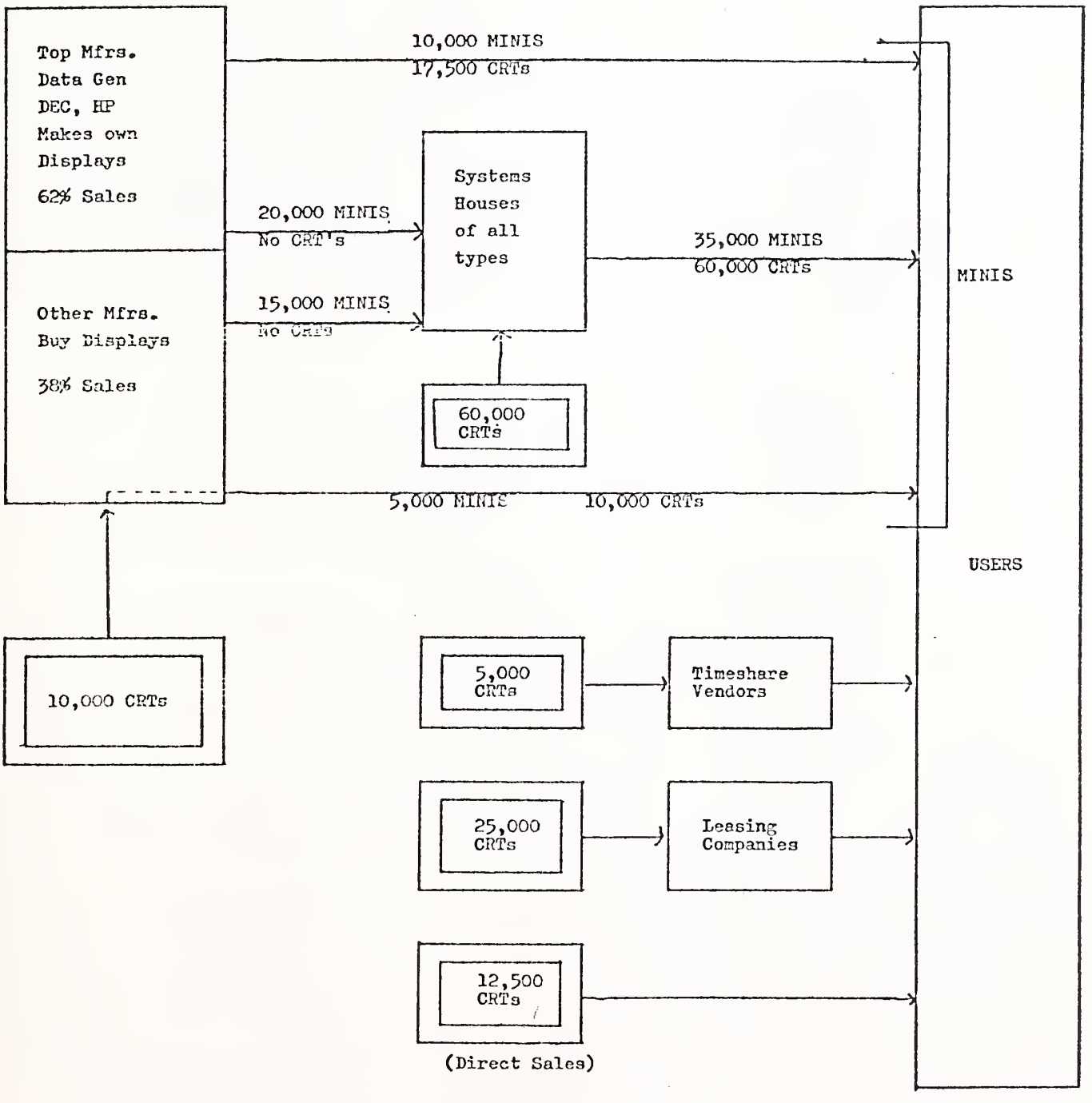
  - Of the 100,000 terminals shipped to third parties, 30% of them (30,000) were shipped via distributors.

- The third party distribution path for teletype compatible CRT terminals is closely related to that for minicomputers, as shown in Exhibit III-2.

EXHIBIT III-2

TERMINALS SHIPPED IN 1977

INTERACTION WITH THE MINI VENDORS



- It correlates well with the figure of 1.75 CRTs per mini system, and shipments of 50,000 minis to the U.S. customers in 1976 (from the INPUT multiclient study, "IBM Series/1," to which IBM is a client).

- Exhibit III-3 shows how the individual third party segments are divided. The sectors with the largest firms (OEM system houses, computer service firms and leasing companies) have the smallest number of firms responsible for 80% of the sales.

- The third party firms are industry specialized and the smaller ones sell mostly to small companies (see Exhibit III-4). Because of this specialization, they use direct salesmen to reach their customers. However, system houses providing products can use reps. because their products have specification sheets. Interviewees believe that third party firms will continue to remain highly industry specialized.

EXHIBIT III-3

NUMBER OF THIRD PARTY FIRMS

			QTY
•	System Houses (OEM) providing products:		
	- Total number	1,000	
	- Number responsible for 80% of the sales	250	60,000
•	System houses providing turnkey systems (not products):		
	- Total number	1,000	
	- Number responsible for 80% of the sales	400	
•	Computer service companies:		
	- Total number	2,800	
	- Number responsible for 80% of the sales	350	5,000
	- Number distributing terminals & mini systems	100	
•	Leasing companies (handling terminals):		
	- Total number	200	
	- Total nationwide	35	25,000
	- Total significant	8	
•	Minicomputer manufacturers buying terminals from a vendor	35	10,000

EXHIBIT III-4

CUSTOMERS OF THIRD PARTY FIRMS

- Customers of third party firms:
  - Industry specialized, and at times applications specialized in the industry.
  - Small third party firms sell mostly to small companies.
  - Regional specialization only because of size.
- Sales techniques of third party firms:
  - System houses providing products use reps. and direct salesmen - about 50% each.
  - Turnkey system houses, computer service companies, and leasing companies use mostly direct sales.

IV THE CRT TERMINAL MANUFACTURER'S POINT OF VIEW

IV THE CRT TERMINAL MANUFACTURER'S POINT OF VIEW

A. HOW CRT MANUFACTURERS REACH THEIR CUSTOMERS

- CRT vendors were interviewed to elicit their opinions on various present and future techniques for selling terminals to third party firms. The results are given in Exhibit IV-1 and discussed below.

- Direct salesmen are used for all major accounts. Some companies have salesmen follow up all leads. However, the majority of companies try to restrict salesmen efforts to potential sales of $25,000 or more.

- Distributors are used by manufacturers for small sales quantities. It is the consensus of the CRT vendors interviewed that these distributors are responsible for about 30% of CRT sales in the U.S. Typically, the distributors are one to fifteen men in size and stock terminals. There was no discussion from CRT vendors interviewed of any conflict between distributors and direct salesmen.

- Components type of distributors such as Schweber and Avnet/Hamilton are experimenting with the sale of large subsystems such as microprocessors and terminals:

  - The classical items sold by distributors are components.

EXHIBIT IV-I

TECHNIQUES USED BY CRT MANUFACTURERS TO REACH THE THIRD PARTIES

• Direct Salesmen: - Best technique. - Limit calls to potential of $25,000 or more.	70-75%
• Distributors: - For small orders. - Responsible for 30% of the sales.	25-30%
• Components type Distributors: - Being tried, Hazeltine with Avnet; Datc General with Schweber. - Unproven. • Terminal Stores: - Many consider to be a way of the future. - Couple with other products. - Unproven. • Computer "Hobby Stores": - System houses for very small business. - Considered important for the future. - Unproven.	Very Little

- In 1977 the distributor industry was responsible for $2.3 billion of business. The top 25 distributors were responsible for $1.3 billion, and the top 5 distributors were responsible for $700 million.

- There is some question as to whether the components type of distributor can provide the support needed for CRT terminals which are becoming increasingly more complex.

- Terminal stores are considered to be a "way of the future" by about one-half of the CRT vendors interviewed:

  - They probably will sell more types of equipment than only terminals.

  - They may evolve from, or become related to, major business office equipment distributors who handle equipment in the thousands of dollars price range.

  - They may become related to the computer "hobby stores."

- Computer "hobby stores" are considered by many CRT vendors to be system houses for very small business:

  - They are capable of developing systems which are very specialized and meet the needs of only a few companies.

  - They build a local relationship with other businesses.

  - They can operate (in theory) with a customer who is too small for the traditional systems house.

  - They can serve as a "fine tuner" of software supplied by larger companies for specific industries.

  - They can utilize skills of moonlighting engineers and programmers.

B. KEY FACTORS IN SELLING TERMINALS FROM THE CRT MANUFACTURER'S POINT OF VIEW

- Exhibit IV-2 shows that there is not a unanimity of opinion about key factors of importance in selling terminals to the third party firms.

- The responses of the third party firms (Exhibits V-16 through V-19) show that price and reliability are key.

- The reasons that more CRT vendors did not emphasize the importance of realiability are probably that:

  - They are not having any problems in that area.

  - It is too obvious to mention.

C. CHARACTERISTICS OF CRT SALES TO THIRD PARTIES

- The teletype compatible CRT sale is characterized by participants as a "wild situation."

- There is extensive discounting (Exhibit IV-4) and each major sale is a separate "deal":

  - Discounts can vary for the same product in the same quantity, depending upon the competitive situation.

  - Variations in other terms and conditions or customization (Exhibit IV-3) also occur.

EXHIBIT IV-2

KEY FACTORS IN SELLING TERMINALS - FROM THE CRT MANUFACTURERS' VIEWPOINT

FACTOR	IMPORTANCE
Price	Rated as a key factor by over half of the respondents, but not all. Also discussed as price performance.
Features	Not rated as a key factor by anyone because it is assumed that everyone will supply features, and no technology breakthrough is needed.
Manufacturer's Name	Rated as important by less than half of respondents.
Maintenance	Rated as important by only two respondents.
Reliability	Rated as important by two respondents.

EXHIBIT IV-3

CHARACTERISTICS OF CRT SALES

- Each sale is "another deal."
- Often for some of the CRT vendors a third party financial company is involved in major sales.
- Typical OEM contracts last one to two years with discounts given on the first unit and "bill back" if needed.
- In the area of customization:
  - About one-half of the CRT vendors interviewed say it is not offered or important.
  - The rest of the CRT vendors will consider customization:
    - of only certain product areas such as keyboards;
    - if the sale is from $250,000 to $500,000.

EXHIBIT IV-4

DISCOUNTING OF PRICE - AS THE CRT VENDOR SEES IT

• Sales of teletype compatible CRT terminals is a "wild situation."
• Price for quantity of one unit is inflated according to respondents.
• Discounts for 100 units run between 20-40% from unit price.
• Discounts for quantities of 1,000 run from 35-50% (or more) from unit price.

- In general, it is an environment of entrepreneurs (independent terminal manufacturers) selling to other entrepreneurs (system houses) by means of very highly compensated salesmen who are looking for short-term commissions. (See Exhibit IV-5.)

D. CRT SALESMEN CHARACTERISTICS

- The characteristics of CRT salesmen are shown in Exhibit IV-5.

- These characteristics and discussions with participants show that a highly competitive environment exists:

  - Salesmen are looking for the "large order" and will strive to obtain this order with discounts, customization, and any other modifications to terms and conditions which may succeed.

  - Salesmen have little company loyalty and will follow the vendor with the best selling terminal.

- Many CRT vendors use very few salesmen, but their salesmen are very highly motivated and compensated.

E. FUTURE TRENDS IN CRT TERMINALS

- Respondents, who were either marketing managers or market support managers, were asked for their opinions about the price which customers will be charged for terminals by 1982. The results are summarized in Exhibit IV-6. The types of terminals (a, b, c) were defined during the interviews as:

EXHIBIT IV-5

SALESMEN CHARACTERISTICS

- Sales per salesman:
  - Average: $600,000 - $800,000
  - Top: $2,000,000 - $3,000,000
- Compensation:
  - Mostly commission if successful.
  - Average "good" salesman: $35,000 - $45,000.
  - Top salesman of year: $80,000 - $150,000

EXHIBIT IV-6

INTERVIEWEE RESPONSES AS TO EXPECTED COST OF TERMINALS IN 1982

	COMPANY TYPE	INTERVIEWEE	EXPECTED PRICE	
			TYPE A	TYPE C
1.	First Tier MWI	OEM Program Manager	$500 in qty.	Will not be sold
2.	User Programmable Terminal Co.	Head of Planning	$200 like TV	Will not be sold
3.	Large Mainframe	Product Dir., Terminals	$500 in qty.	$700
4.	Independent Terminal Co.	Manager of Market Research	$400 in 100 qty.	$1,000 in 100 qty.
5.	Large Mainframe Co.	OEM equipment Designation by VP	$500 in qty.	$600-700
6.	User Programmable Terminal Co.	Director, Mkt Support	$400-500 in qty.	$600-700 in qty.
7.	User Programmable Terminal Co.	Manager, Mkt Research	$500 in qty.	—
8.	Independent Terminal Co.	Marketing Manager	$400 in qty.	$500 in qty.
9.	Large Communications Co.	AVP Planning	$700 unit cost	$1,000 unit cost
10.	Large Communications Co.	New Products Manager	$500-700 qty 5000	$1500-2000 qty 5000
11.	Independent Terminal Co.	Product Planning Mgr.	$650 in unit qty.	$800 in unit qty.
12.	Large Communications Co.	Product Line Mgr.	$800-1000 unit qty	$2000 unit qty
13.	Plug compatable manufacturer	Sales Support Mgr.		$2,000 unit qty $1,000 qty 1000
14.	Large Communications Co.	Technical Director	A throw away item	
15.	Large equipment manufacturer	Long range planning Mgr.	$1,500 qty 100	$1,000 3270 compatable

A) Minimal features; no editing; transmit character by character.

B) Insert and delete a line; scrolling up only (loose information when scrolling); transmit data by block.

C) More sophisticated features; insert and delete a character of a line; scroll up or down (saving information); field protect, transmit data block-polling.

- In general, the opinions were that microprocessors and very large scale integration will allow many features to be added to terminals at a minimum cost; as a result of this availability of "intelligence" there will be a proliferation of features.

F. PRESENT PRICE DESIRES OF THIRD PARTIES

- To obtain another viewpoint on the pricing of teletype compatible CRT terminals, third party participants were asked what they are now willing to pay for CRT terminals (definitions that are included in Section E were used during the interviews). The responses (unedited) are shown in Exhibits IV-7, -8, and -9:

  - A question of what are you willing to pay can be considered a "wish list." Thus, the prices shown are probably lower than the current market.

  - The present prices show that the prices anticipated by CRT vendors in 1982 (Exhibit IV-6) are not unreasonable.

- Since IBM is a major vendor with an excellent reputation, third party vendors were asked what they were willing to pay (additional) for a teletype compatible CRT terminal supplied by a major vendor. The results (unedited) are shown in Exhibits IV-10, -11, and -12.

EXHIBIT IV-7

WHAT THIRD PARTIES ARE NOW WILLING TO PAY FOR TERMINALS

SYSTEM HOUSES, OEM

SIZE	A	B	C
1. $35M	Lease 75/mo	Lease 100/mo	Lease 125/mo
2. $6M	No use	Q 500 - $900	Q 500 - $1,200 - 1,300
3. $14M	No use	$900	$1000-1100 if paging
4. $30M	$750 current cost	Not useful	Could be up to $1750 but not useful in near future
5. $30-40M	Q 100 - $500	Q 100 - $700	Q 100 - $1,000-1,200
6. $13-14M	No use	No use	<$500
7. $10M	Q 100 - $800	No use	Only minor use, low quantity $3,000 - 4,000
8. $40M parent	No interest	Q 100 - $500	-
9. $3-4M		<$2,000	$2,000 with $25/mo maintenance
10. $4M	No value	Little value	-
11. $3M	No value	No value	A must
12. $85M parent	$600 large qty.	$700 large qty.	$1,000 large qty.
13. $50M parent	$700-800 drop to $500 Q 500	-	$1,200 - 1,300 Q 500
14. $100M	No use	No use	$4,500 Alpha C graphics
15. $4-5M	No use	No use	Q 100 - $2,500

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EXHIBIT IV-8

WHAT THIRD PARTIES ARE NOW WILLING TO PAY FOR TERMINALS

SYSTEM HOUSES, TURNKEY

	SIZE	A	B	C
17.	$25M	Q 500 - <$1,000	No	No
18.	$6-8M	Q 100 - $750	Q 100 - $1,500	Q 100 - $2,500
19.	$3M	$1,500	$2,000	$2,500
20.	$2.5M	No use	No use	Q 100 - $1,500 - 2,000
21.	$2-3M	Not used	$800-1,000 depending on features	$1,600
22.	$ .5M		Would pay extra	No need
23.	$1-2M	Q 100 - $1,000	No use	No use
24.	$100M	Q 100 - $600-800	No need	No need
25.	$ .5-1M	N/A	No need	No need
26.	$14M	No use	Not known	

EXHIBIT IV-9

WHAT THIRD PARTIES ARE NOW WILLING TO PAY FOR TERMINALS

COMPUTER SERVICE COMPANIES, LEASING COMPANIES

COMPUTER SERVICE COMPANIES

	SIZE	A	B	C
27.	$50M	Would not buy	$30-50/mo	$50
28.	$6-7M	Would not buy	-	-
29.	> $100M	$600-800	$800-900	$1,200-1,300

LEASING COMPANIES

30.	Big	-	-	-
31.	Big	Q 500+ - $700	Q 500+ - $800	$1,100-1,200
32.	Big	$650 falling to $500 - Q 500	Q 500 - $800	$1,400-1,600 prices tumbling hardest this level
33.	$1M	-	-	-
			DISTRIBUTORS	
34.		Q 1 - $900	Q 1 - $1,450	Q 1 - $2,000
35.		Q 100 - $800	Q 100 - $900	Q 100 - $1,500-2,000

EXHIBIT IV-10

IMPORTANCE OF A MAJOR MANUFACTURER'S IMAGE

SYSTEM HOUSES, OEM

SIZE	IMPORTANCE OF IMAGE	WILLINGNESS TO PAY
1. $35M	-	Nothing
2. $8M	"Wish he had lower profile"	Nothing
3. $14M		Nothing
4. $30M	Not at all	Nothing
5. $30-40M	Not too much, "more a downside criterion"	Not even 5%
6. $13-14M	Not at all	
7. $10M	Low	
8. $50M parent startup	High quality device	Up 10-15%
9. $3-4M	Not important at all	"Zero"
10. $4M	"Could care less"	
11. $3M	"Important"	"Not willing to pay premium (except very low premium)"
12. $85M total (smaller system)	"immaterial"	"Not likely"
13. $50M total (smaller system)	"only if negative"	"Nothing"
14. $100M Div. of large Co.	"Not at all"	"Nothing"
15. $4-5M	"Must not be embarrassed to say who"	"Not much"

EXHIBIT IV-11

IMPORTANCE OF A MAJOR MANUFACTURER'S IMAGE

SYSTEM HOUSES, TURNKEY

	SIZE	IMPORTANCE OF IMAGE	WILLINGNESS TO PAY
17.	25M	"None, put own name on system"	
18.	$6-8	"Not very much, end users are first time and accept recommendations	
19.	$3M	Yes	A little
20.	$2.5M		Little
21.	$2-3M	Very necessary since customers choose which terminal they use	10-20%
22.	$.5M	Not important	Nothing, but customers might
23.	$1-2M	Not much, private label	Not much, none, very small
24.	$100M Parent	Some value	8%, a guess
25.	$.5-1M	Helps	Depends, better vendor costs more
26.	$14M	Customers deal with third party	None

EXHIBIT IV-12

IMPORTANCE OF A MAJOR MANUFACTURER'S IMAGE

COMPUTER SERVICE FIRMS, LEASING COMPANIES, DISTRIBUTORS

COMPUTER SERVICE FIRMS

	SIZE	IMPORTANCE OF IMAGE	WILLINGNESS TO PAY
27.	$50M	Not too (medium)	5% more at most
28.	$6-7M	Not much	Leery about cost, moving into programmable terminals for first time
29.	$100M	Very important now	Would not pay big premium except for IBM
		LEASING COMPANIES	
30.	Big	Not necessarily, if image reflects actual performance, reliability, stability of company, then name would be important, otherwise not important.	
31.	Big	Very high	Medium, because of national advertising creates customer acceptance
32.	Big	Very, brand name important to customers	15-20% and 10-30% overall range
33.	$1M	More important to customer than leasing company	More important what factory does to support leasing company
		DISTRIBUTORS	
34.	$1-3M	Very	1/3 more
35.	$12-15M	Varies all over but insurance companies and banks only want IBM. Other people want best price performance.	

- The name of IBM was not used specifically, so it is possible that the IBM name would command a higher price than other "major vendors."

- System houses are not willing to pay additionally for a major vendor's name, and, in fact, do not consider it an advantage. This is because the terminal is incorporated in another system and is not a major part (cost) of the system.

- Computer service companies and leasing companies utilize the CRT terminal in a standalone mode. Thus, they are willing to pay a premium for the name of a major vendor.

V THE "THIRD PARTY VENDOR'S" POINT OF VIEW

V THE "THIRD PARTY VENDOR'S" POINT OF VIEW

A. TYPICAL "THIRD PARTY VENDOR"

- As an example of a typical "third party vendor," an OEM supplier of small business computers was used. It was assumed that the firm has $10,000,000/year of sales.

- The President of the firm is the Chief Executive Officer. Reporting to him are:

  - Head of Marketing who is in charge of sales, applications software, and maintenance.

  - Head of Finance who is responsible for accounting, banking relations, payroll, etc.

  - Head of Engineering who is responsible for hardware development and system software.

  - Head of Manufacturing.

- The typical firm will endeavor to maintain a 2:1 ratio of current assets over current liabilities. The majority of current assets are in the form of inventory:

- The firm will be paid by its customers in 60 days or more, since the small business system must be installed and running before payment starts.

- The firm will pay its own bills in 60-90 days. It will generally have a poor credit rating. If it pays within 30 days, it is managing its cash poorly.

- Cash flow is always a problem because customers of small business systems will not make any payments until the system is working perfectly.

- Typical systems sold will cost between $35,000 and $100,000. About 200 systems are sold each year by a $10,000,000 firm:

  - No one customer is responsible for more than 10% of the firm's business.

- Typical applications packages are very industry specialized. For example, wholesalers of lumber:

  - The software handles unique measurements such as board feet.

  - This industry specialty will be emphasized.

- Because of the heavy industry specialization, products have a very long life; e.g., 5-10 years:

  - Hardware is changed and updated slowly as economics change; i.e., cheaper disk drives, etc.

- The real product of the firm is often application specialties, not hardware.

- The President of the firm is the chief product planner:
  - He may have reached his position via the route of marketing, engineering or general management.
  - Product design in the hardware stage lasts 6 to 12 months.
  - Applications software takes an additional 6 months.
- Product development lasts a long time as applications are continually refined and updated.

B. COMPANY WHICH BUILDS ITS OWN CRTs

- An end user product manufacturer (systems house of about $25 million), which builds its own CRT displays, was interviewed to find out why it does not purchase CRT displays. This interview was performed so that a different point of view could be obtained. The conclusions are those of the respondent:
  - "The CRTs are easy to build since the major components of tube and electronics, keyboards, power supplies, covers, and microprocessors are easily available."
    - "CRT manufacturers do this anyway."
  - "Intelligence is easily available, and there is no purpose in having a dumb terminal."
    - "Microprocessors are inexpensive."
  - "Memory must exist for the central CPU."

- "They can have a custom design for no more cost than a purchased CRT."

- "There is no standard CRT display available; thus, economics of scale for a potential CRT vendor do not apply."

- "The company made their own CRTs at 50/year and are now at 5,000/year. They will never buy CRTs."

C. ANALYSIS OF THIRD PARTY PARTICIPANTS

- Thirty-five interviews were held with "third party vendors" during the course of the study. The results of these interviews are tabulated in Exhibits V-1 through V-31.

- In each case, the responses were shown separately to determine if any significant differences exist among the individual market sections of:

  - System houses (OEM) which provide products.

  - System houses which supply turnkey systems.

  - Computer service firms.

  - Leasing companies.

  - Distributors.

- In general, the exhibits "speak for themselves." However, significant points are commented upon.

- The first series of Exhibits (V-1 through V-15) show the characteristics of the "third party vendors" interviewed, and how they do business. The second series of Exhibits (V-16 through V-31) show the attitudes of the third parties toward the purchase of teletype compatible CRT terminals.

- Exhibits V-1 through V-3 show that "third party vendors" have a strong tendency towards specialization and that they all supply their own applications software, and that practically all of them supply their own systems software. Thus, the trend towards software modification for product or system updating can be understood.

- The difference in size between the system houses which provide products and turnkey systems vendors is shown in Exhibits V-4 through V-8. The high growth rates of the smaller firms which are early in their business cycle are notable.

- Exhibits V-7 and V-8 show that the average system developed by third parties costs between $35,000 and $175,000 and is generally sold rather than leased. very few operating leases are written except by the leasing companies. Their terminals are a small portion of the system delivered to the users (except for computer service companies and leasing companies).

- IBM is a competitor to about one-third of the third parties, but then again so is most everyone else. (See Exhibits V-10 through V-12.)

- Exhibits V-14 and V-15 show that about one-half of the respondents will upgrade their systems in the field in some manner.

- Exhibits V-16 through V-19 show that the most important factor in choosing terminals is reliability with every third party firm considering it of high importance. Price and discount policy is rated second highest in importance among all participants, followed by delivery schedule and field maintenance.

- Of low interest to the participants are drop shipping and customization (although flexibility was mentioned as important in advice to CRT vendors in Exhibit V-28).

- In Exhibit V-20, flexibility, modularity and growth potential all stand out as other factors of importance mentioned by interviewees.

- The price difference to switch vendors (Exhibit V-21) reflects the difficulty of design conversion and the problems inherent in having differently configured systems in the field. The relatively large percentages required for change show the advantage of a pricing policy that essentially makes the price of the first terminal for the prototype low.

- Discount prices expected and received by "third party vendors" (Exhibit V-22) cluster about a 35% discount. There was no particular emphasis on extended payment terms. However, there was comment about not liking to be billed back if quantities are not met.

- The universal acceptance of field replaceable modules for maintenance (Exhibit V-23) is significant as is the interest of the CRT vendor being able to service its CRTs. This is so despite the fact that most of the third party participants service their own equipment (Exhibit V-24). CRT vendor assistance in stocking parts and repairing assemblies quickly is wanted.

- Areas of customization wanted are shown in Exhibit V-25, but no pattern exists. Drop shipments are not high priority items (see Exhibit V-26). Delivery times wanted run from 15-90 days. The longer delivery times shown for OEM system houses supplying products is a reflection of their business in which previously designed products are sold. (See Exhibit V-27.)

- Exhibits IV-10, -11, and -12 show that system houses and computer service companies do not find the image of a major vendor for CRT terminals important, nor are they willing to pay for this image. On the other hand, leasing companies and distributors find the name of a major vendor important.

Some of the reasons why system houses do not find the name of a major vendor important are:

- The CRT is inherently reliable and can be replaced.

- Existing vendors are satisfactory.

- There is no major product differentiation among CRT terminals.

- Responsiveness and flexibility were the general answers to the question, What advice do you have to offer to CRT vendors? (See Exhibit V-28.)

- The purchase decision pattern (Exhibit V-29) shows that senior management usually operates in a committee environment. The different time spans for decisions are due to product development by system houses and leasing companies, and reaction to customer wants by turnkey houses.

- Field upgrade is a definite advantage for approximately one-third to one-half of the respondents (Exhibit V-31). The low interest among system houses providing OEM products may be due to the fact that their systems are industry specialized and thus change mostly in the software.

EXHIBIT V-I

SYSTEM HOUSES, OEM

PRODUCTS-SOFTWARE

RESPONDENT NUMBER	KEY PRODUCTS	SYSTEM SOFTWARE	APPLICA-TIONS SOFTWARE	MARKETS
1	DATA ENTRY	CONTRACT	SELF	NATIONAL
2	BUSINESS	SELF	SELF	MEDICAL FURNITURE MFG.
3	BUSINESS	SELF	SELF	FUEL OIL, RETAIL
4	KEY DISK	OUTSIDE	SELF	FINANCIAL
5	BUSINESS, WORD PROC.	SELF	SELF	LEGAL, PETROLEUM
6	TYPESET	SELF	SELF	NEWSPAPERS
7	COMMUNICA-TIONS CTRL.	SELF	SELF	FORTUNE 500, BANK
8	NOT DECIDED	SELF	SELF	--
9	BUSINESS	HARDWARE VENDOR	SELF	CREDIT UNIONS
10	TEXT PROC.	SELF	SELF	LEGAL, INSURANCE
11	TEXT PROC.	SELF	SELF	FORTUNE 500
12	PROCESS AUTO	SELF	SELF	NATIONAL
13	ALL	SELF	SELF	ALL
14	COMMAND CONTROL	SELF	SELF	GOVERNMENT
15	BUSINESS	SELF	SELF	ALL

EXHIBIT V-2

SYSTEM HOUSES, TURNKEY

PRODUCTS-SOFTWARE

RESPONDENT NUMBER	KEY PRODUCTS	SYSTEM SOFTWARE	APPLICATIONS SOFTWARE	MARKETS
17	BUSINESS	SELF	SELF	CAR DEALERS, BEER DISTRIBUTORS, WHOLESALE
18	BUSINESS	HARDWARE VENDOR	SELF	FOOD, OIL
19	BUSINESS	SELF	SELF	MEDICAL
20	COMMUNICATIONS	SELF	SELF	N. EAST
21	BUSINESS	SELF	SELF	EAST
22	BUSINESS	SELF	SELF	REGIONAL
23	BUSINESS	HARDWARE VENDOR	SELF	WHOLESALE, TRANSPORT
24	RJE	SELF	USER	NATIONWIDE
25	BUSINESS	SELF	SELF	--
26	CREDIT	SELF	SELF	BANKS, RETAIL

EXHIBIT V-3

COMPUTER SERVICE FIRMS

PRODUCTS-SOFTWARE

RESPONDENT NUMBER	KEY PRODUCTS	SYSTEM SOFTWARE	APPLICA-TIONS SOFTWARE	MARKETS
27	BUSINESS	SELF	SELF	INSURANCE
28	BUSINESS	SELF	SELF	PETROLEUM
29	BUSINESS	SELF	SELF	MANUFACTUR-ING DISTRI-BUTION

EXHIBIT V-4

SYSTEM HOUSES, OEM
SIZE AND GROWTH

RESPON-DENT NUMBER	SIZE ($M)	GROWTH PER YEAR	SYSTEMS INSTALLED	TERMINALS INSTALLED	TERMINALS/ SYSTEM
1	$ 35.0	12%	15,000	15,000	GOING TO 2/3 PER SYSTEM
2	$ 6.0	100%	46	150	3.3
3	$ 14.0	35%	800	3,600	4.5
4	$ 30.0	40%	180	1,440	8.0
5	N/A	N/A	10	20	2.0
6	$ 13.0	-	125	875	7.0
7	$ 10.0	-	100	70	0.7
8	(START UP)				
9	$ 3.3	25%	-	540	-
10	$ 4.0	-	150	500	3.3
11	$ 3.0	-	450	550	1.2
12	$ 85.0	-	22,000	25,000	1.1
13	$ 50.0	-	2,000	10,000	5.0
14	$100.0	10%	-	-	
15	$ 4.5	-	150	450	

EXHIBIT V-5

SYSTEM HOUSES, TURNKEY

SIZE AND GROWTH

RESPON-DENT NUMBER	SIZE ($M)	GROWTH PER YEAR	SYSTEMS INSTALLED	TERMINALS INSTALLED	TERMINALS/ SYSTEM
17	$ 25.0	100%	300	1,100	3.7
18	$ 7.0	100%	150	400	2.7
19	$ 3.0	10%	12	40	3.3
20	$ 2.5	35%	100+	500+	5.0
21	$ 3.0	50%		100	14.0
22	$ 0.5	10%	2	2	1.0
23	$ 1.0	100%	50	200	4.0
24	$100.0	-	2,000	1,100	0.55
25	$ 0.75	100%	10	10	NEXT DESIGN 7
26	$ 14.00	17%	85	700	8.2

INF

EXHIBIT V-6

COMPUTER SERVICE COMPANIES, LEASING COMPANIES

SIZE AND GROWTH

COMPUTER SERVICE COMPANIES

RESPONDENT NUMBER	SIZE	GROWTH PER YEAR	TERMINALS INSTALLED	
27	$50M	17%	100	AS PACKAGING SYSTEMS
28	$ 6M	15%	500	
29	-	-	150	

LEASING COMPANIES

30	$ >10M		
31	$ >10M		1,000
32	$ >10M		8,500
33	$ 1M		700

EXHIBIT V-7

SYSTEM HOUSES, OEM

HOW SOLD

RESPONDENT NUMBER	AVERAGE SYSTEM PRICE	FREE STANDING OR NETWORK CONNECT	SOLD	PERCENT		
				FULL PAY-OUT LEASE	OPERATING LEASE	RENT MONTHLY
1	$ 50,000	FREE STANDING 90%	-	-	80% -	85%
2	$ 50,000	FREE STANDING 100%	MOST	-	-	-
3	$ 60,000		-	100%	-	-
4	$ 2,400/mo	MOST FREE STANDING	25%	----------	------75%------	----------
5	$ 35,000	FREE STANDING 90%	100%	-	-	-
6	$ 100,000	MOST FREE STANDING	-	-	-	-
7	$ 175,000	FREE STANDING 100%	100%	-	-	-
8		CONNECT 100%	60%	-	40%	-
9	$ 2,500/mo	CONNECT 100%	50%	50%	-	-
10	$ 65,000	---	95%	-	5%	-
11	$ 100,000	CONNECT 100%	95%	-	5%	-
12	$ 40,000	FREE STANDING 75%	95%	-	5%	-
13	$ 150,000	FREE STANDING 90%	90%	----------10%----------		-
14	$3,000,000	CONNECT 100%	100%	-	-	-
15	$ 90,000	FREE STANDING 100%	95%	----------	------ 5%------	----------

EXHIBIT V-8

SYSTEM HOUSES, TURNKEY

HOW SOLD

RESPON-DENT NUMBER	AVERAGE SYSTEM PRICE	FREE STANDING OR NETWORK CONNECT	SOLD	PERCENT		
				FULL PAY-OUT LEASE	OPERATING LEASE	RENT MONTHLY
17	$ 70,000	FREE STANDING 100%	100%	-	-	-
18	$ 50,000	FREE STANDING 95%	25%	75%	-	-
19	$ 80,000	FREE STANDING 100%	100%	-	-	-
20	$ 90,000	FREE STANDING 100%	100%	-	-	-
21	$350,000	FREE STANDING 100%	MOST	SOME	-	-
22	$ 85,000	CONNECT 100%	10%	-	-	90%
23	$ 70,000	FREE STANDING 75%	50%	50%	-	-
24	$ 2,000/mo	CONNECT 100%	100%	-	-	-
25	$ 50,000	FREE STANDING 100%	100%	-	-	-
26	$450,000	FREE STANDING 60%	100%	-	-	-

EXHIBIT V-9

COMPUTER SERVICE COMPANIES, LEASING COMPANIES
HOW SOLD

COMPUTER SERVICE COMPANIES

RESPON-DENT NUMBER	AVERAGE SYSTEM PRICE	FREE STANDING OR NETWORK CONNECT	SOLD	PERCENT		
				FULL PAY-OUT LEASE	OPERATING LEASE	RENT MONTHLY
27	$ 500/mo	CONNECT 100%	20%	-	-	80%
28	$2,700/mo	CONNECT 100%	80%	20%	-	-
29	$1,200/mo	CONNECT 100%	5%	-	-	95%

LEASING COMPANIES

30	$2,500	-	-	-	100%	-
31	VARIES	-	-	10%	90%	-
32	$4,500	-	-	-	5%	95%

EXHIBIT V-10

WHAT RESPONDENTS VIEW AS THEIR MAJOR COMPETITION: SYSTEM HOUSES, OEM - PROVIDING PRODUCTS

1.	IBM
2.	Basic-4, SYS/34 (IBM)
3.	6-8, Microdata is one
4.	IBM and several dozen others
5.	Word Proc., dozens; Industry Automation, ESI
6.	Harris, Merganthaler, dozens
7.	IBM, Datapoint, Danray
8.	Rather not say - 100
9.	SBC, Cunedata, Users Inc., 100
10.	Wang, DEC - 40
11.	Compuscan, ICS, Daconics, Quadex - 20
12.	DEC, Data General, 2-3
13.	HP, DEC, IBM, 6
14.	Grumman, Gen. Dynamics, Lockheed, 12
15.	MICOS, Basic 4, Wang 3-6

EXHIBIT V-11

WHAT RESPONDENTS VIEW AS THEIR MAJOR COMPETITION: SYSTEM HOUSES PROVIDING TURNKEY SYSTEMS

17.	Reynolds & Reynolds, ITEL, ADP, IBM, Burroughs
18.	No idea
19.	Local firms
20.	All minicomputer OEMs, several thousand
21.	Other OEMs, 60
22.	Timeshare firms and turnkey system houses, 50 in city
23.	IBM S/34, Data Gen., Basic 4, Several 100
24.	IBM, Mohawk, Data 100, 4 Phase, 25 major
25.	Everyone
26.	TRW, GI, few

EXHIBIT V-12

WHAT RESPONDENTS VIEW AS THEIR MAJOR COMPETITION:

COMPUTER SERVICE FIRMS

27.	ARC, Systams, IBM, Wang-12
28.	Timeshare, 8
29.	IBM, MSL, Basic 4, Univac

LEASING COMPANIES

30.	6 other major leasing companies
31.	6 other major leasing companies
32.	6 other major leasing companies, major manufacturers
33.	30-40 in metro area

EXHIBIT V-13

SYSTEM HOUSES, OEM

MAINTENANCE, FIELD UPGRADING

RESPON-DENT NUMBER	WHO MAIN-TAINS	FUTURE TECHNICAL TRENDS	FUTURE PRODUCT TRENDS	WILL SYSTEM BE FIELD UPGRADED
1	SELF	-	REPLACE UNITS	NO
2	SELF	MICRO COMP.	SMALLER NOT DUP	NO
3	SELF	MICROPROC.	SMARTER, PERIPHERALS	YES, BUT NOT IN FIELD
4	SELF	SMARTER TERMINALS	DISTRIBUTED DATA PROC.	YES
5	HARDWARE VENDOR	LOWER PRICE	LOWER PRICE	NO
6	SELF	LOWER COST	MORE SOPHIST.	--
7	SELF	BETTER TECHNOLOGY	ENHANCEMENTS	YES
8	3 PARTY	GOOD SOFTWARE	-	YES
9	HARDWARE VENDOR	EFTS ACCEPTANCE	----------NOT	CERTAIN--------
10	TERMINAL VENDOR	ELECTRONIC MAIL	-	-
11	SELF	HIGH SPEED REPRO	ADD PERIPHERALS	NO, JUST ADD
12	SELF	INTELLIGENT CONTROL	-	NO
13	SELF	FASTER HARDWARE	-	YES, ALOT
14	SELF	GRAPHICS CHEAPER	-	NOT CURRENT POPULATION
15	SELF	BETTER SOFTWARE	DDP	YES

EXHIBIT V-14

SYSTEM HOUSES, TURNKEY

MAINTENANCE, FIELD UPGRADING

RESPON-DENT NUMBER	WHO MAIN-TAINS	FUTURE TECHNICAL TRENDS	FUTURE PRODUCT TRENDS	WILL SYSTEM BE FIELD UPGRADED
17	SELF	DATA COMM.	EXPANDED MARKETS	YES
18	HARDWARE VENDOR	MICRO COMP.	NEW SOFTWARE	YES
19	HARDWARE VENDOR	MORE POWER, LESS COST	MORE MEMORY	YES
20	HARDWARE VENDOR	DDS	ELECTRONIC MAIL	YES
21	HARDWARE VENDOR	----------	NOT AFFECTED--	----------
22	SELF	LOWER COST HARDWARE	-	-
23	HARDWARE VENDOR	MORE RELIABLE	-	YES
24	SELF	-----IMPROVED	SOFTWARE-----	YES
25	HARDWARE VENDOR	-	ADD WORD PROC.	?
26	SELF			REPLACE

EXHIBIT V-15

COMPUTER SERVICE FIRMS, LEASING COMPANIES

MAINTENANCE, FIELD UPGRADING

COMPUTER SERVICE FIRMS

RESPON-DENT NUMBER	WHO MAINTAINS	FUTURE TECHNICAL TRENDS	FUTURE PRODUCT TRENDS	WILL SYSTEM BE FIELD UPGRADED
27	TERMINAL VENDOR	-	-	YES, VIA NETWORK
28	TERMINAL VENDOR	VAN SERVICES	-	-
29	TERMINAL	DRASTIC SOFTWARE	-	-

LEASING COMPANIES

30	SELF	-	MICROCOMPUTER	YES
31	SELF	MICROCOMPUTER	REPLACE WITH SMARTER TERMINALS	-
32	-	GLASS TELETYPE	REPLACE WITH INTELLIGENT	=
33	SELF	SHORTER PROD. PRODUCT LIFE	-	YES

EXHIBIT V-16

IMPORTANCE OF FACTORS IN PURCHASE DECISION: THIRD PARTIES

FACTOR	% HIGH	% MEDIUM	% LOW
Price	71	26	3
Discount Policy	76	21	3
Payment Terms	18	44	38
Warranty	41	41	18
Field Maintenance	45	22	33
Customization	19	19	62
Drop Ship	19	19	62
Reliability	100	0	0
Delivery Schedule	61	36	3
Train Staff	13	48	29
Supply Loaners	21	38	41

EXHIBIT V-17

IMPORTANCE OF FACTORS IN PURCHASE DECISION:

SYSTEM HOUSES, OEM

FACTOR	% HIGH	% MEDIUM	% LOW
Price	66	26	7
Discount Policy	80	13	7
Payment Terms	13	40	47
Warranty	53	26	21
Field Maintenance	39	21	40
Customization	7	40	53
Drop Ship	7	7	86
Reliability	100	0	0
Delivery Schedule	53	40	7
Train Staff	7	67	26
Supply Loaners	21	39	40

EXHIBIT V-18

IMPORTANCE OF FACTORS IN PURCHASE DECISION:

SYSTEM HOUSES, TURNKEY

FACTOR	% HIGH	% MEDIUM	% LOW
Price	60	40	0
Discount Policy	70	30	0
Payment Terms	30	70	0
Warranty	30	60	10
Field Maintenance	40	40	20
Customization	10	30	60
Drop Ship	33	23	44
Reliability	100	0	0
Delivery Schedule	70	30	0
Train Staff	0	44	56
Supply Loaners	23	44	33

EXHIBIT V-19

IMPORTANCE OF FACTORS IN PURCHASE DECISION:

COMPUTER SERVICE VENDORS, LEASING COMPANIES, DISTRIBUTORS

FACTOR	% HIGH	% MEDIUM	% LOW
Price	89	11	0
Discount Policy	78	22	0
Payment Terms	11	22	67
Warranty	33	45	22
Field Maintenance	67	0	33
Customization	11	11	78
Drop Ship	22	33	45
Reliability	100	0	0
Delivery Schedule	67	33	0
Train Staff	38	24	38
Supply Loaners	22	33	45

EXHIBIT V-20

OTHER FACTORS OF IMPORTANCE MENTIONED BY RESPONDENTS

• System Houses OEM: - Parts stocking, flexibility, software compatibility, esthetics.
• System Houses Turnkey: - Esthetics, industry acceptance, vendor reputation.
• Computer Service Company: - Modularity, growth potential.
• Leasing Companies: - Spare parts, flexibility, upgradeable, long product life.
• Distributors

EXHIBIT V-21

PRICE DIFFERENTIAL TO SWITCH VENDORS

• System Houses, OEM: - Average 15-25%
• System Houses, Turnkey: - Average 10-20%
• Computer Service Companies: - 10-20%
• Leasing Companies: - Margin counts, 30-40%
• Distributors: - Average 5-20%

EXHIBIT V-22

DISCOUNT POLICY AND PAYMENT TERMS

• System Houses, OEM:	
Optimum discount	30-40%, no bill back
Discounts now paying	30-50%
Payment terms wanted	30-90 days
• System Houses, Turnkey:	
Optimum discount	Negotiated, no bill back
Discount now paying	Same
Payment terms wanted	30-90 days
• Computer Service Company:	
Optimum discount	25%
Discount now paying	20-30%
Payment terms wanted	C.O.D.
• Leasing Companies:	
Optimum discount	30%
Discount now paying	30%
Payment terms wanted	30-60 days
• Distributors:	
Optimum discount	
Discount now paying	
Payment terms wanted	30 days

EXHIBIT V-23

MAINTENANCE POLICY

• System Houses, OEM:	
Importance of CRT Vendor Servicing	Low to high
Importance in all Regions	Yes
Are field replaceable modules an advantage	Very strongly yes
• System Houses, Turnkey:	
Importance of CRT Vendor Servicing	High to medium
Importance in all Regions	Yes
Are field replaceable modules an advantage	Yes
• Computer Service Companies:	
Importance of CRT vendor Servicing	High
Importance in all Regions	No
Are field replaceable modules an advantage	Yes
• Leasing Companies:	
Importance of CRT Vendor Servicing	Competes with them
Importance in all Regions	Yes
Are field replaceable modules an advantage	Yes
• Distributors:	
Importance of CRT vendor Servicing	High
Importance in all Regions	Yes
Are field replaceable modules an advantage	Yes

EXHIBIT V-24

FIELD SERVICING

• System Houses, OEM:	
How respondent services	Mostly own staff
How respondent wants CRT vendor to help	Regional stock parts
• System Houses, Turnkey:	
How respondent services	Own staff & hardware vendor
How respondent wants CRT vendor to help	Fast turnaround
• Computer Service Companies:	
How respondent services	Own staff
How respondent wants CRT vendor to help	Call for help
• Leasing Companies:	
How respondent services	Mostly self, CRT vendor
How respondent wants CRT vendor to help	Little
• Distributors:	
How respondent services	Self & CRT vendor
How respondent wants CRT vendor to help	24 hour response

EXHIBIT V-25

WHAT CUSTOMIZATION IS IMPORTANT

•	System Houses, OEM: - Just about all features, no pattern.
•	System Houses, Turnkey: - None.
•	Computer Service Companies: - Tape storage, built in but not wired features.
•	Leasing Companies: - Protocols, esthetics, programmability.
•	Distributors: - Flexible interfaces.

EXHIBIT V-26

ADVANTAGE OF DROP SHIPPING

• System Houses, OEM: - None at all.
• System Houses, Turnkey: - Some use, not a strong item.
• Computer Service Companies: - Save on freight.
• Leasing Companies: - Little use.
• Distributors: - No warehousing.

EXHIBIT V-27

WHAT DELIVERY SCHEDULE IS WANTED FROM CRT SUPPLIERS

• System Houses, OEM: - 30-90 days
• System Houses, Turnkey: - 30-45 days
• Computer Service Companies: - 15-90 days
• Leasing Companies: - 30-60 days, 30 better
• Distributors: - 15-45 days

EXHIBIT V-28

WHAT ADVICE TO OFFER TO CRT VENDORS

• System Houses, OEM: - Flexibility, maintenance related.
• System Houses, Turnkey: - Responsiveness, delivery.
• Computer Service Companies: - Responsiveness, flexibility.
• Leasing Companies: - Flexibility, responsiveness.
• Distributors: - Responsiveness.

EXHIBIT V-29

PURCHASE DECISIONS

• System Houses, OEM:	
Who decides:	Committe, Sr. Management
How long does it take:	3-6 months on average
• System Houses, Turnkey:	
Who decides:	Sr. Management, project staff
How long does it take:	30-60 days
• Computer Service Companies:	
Who decides:	Sr. Management, product staff
How long does it take:	30 days to 1 year
• Leasing Companies:	
Who decides:	Sr. Management
How long does it take:	3-6 months
• Distributors:	
Who decides:	Customer

EXHIBIT V-30

TERMINAL TYPES THAT MEET NEEDS

Considering the following types of CRT terminals:

A - Minimal Features
B - Line insert-delete, scrolling up, block transfer
C - Character insert-delete, scrolling up-down, polling

Which type best meets your needs.

- System Houses, OEM:
  A or C, not B
- System Houses, Turnkey:
  A mostly, some B and C
- Computer Service Companies:
  B mostly
- Leasing Companies:
  A and B
- Distributors:
  A and C

EXHIBIT V-31

VALUE OF BEING ABLE TO FIELD UPDATE TERMINALS

• System Houses, OEM: - Mostly no value, high for a few
• System Houses, Turnkey: - Low to medium
• Computer Service Companies: - High
• Leasing Companies: - High
• Distributors: - Low

APPENDIX A: QUESTIONNAIRES

2/10/78
AAA-CRT

CRT Vendors

* We are analysing the third part (Non user) market for teletype compatible displays (such as lear siegler ADM series and ADDS consul) to determine how many firms are involved (as customers) and the characteristics of the market. We would like to compare information:

Third party participants by categories are:

A. OEM's who assemble equipment into systems, and market them as products.

B. Systems houses which provide assembled systems to user specifications.

C. Computer service companies who provide small business systems or CRT's to their customers.

D. Terminal leasing companies such as Western Union Data Services and RCA Service Co.

E. Mini Computer manufacturers.

1) We would like to compare information about the characteristics of the marketplace.
Numbers of firms

(A) OEM's who assemble equipment into systems

* We have some data wich shows

- Total firms supplying EDP Systems_____
- Total firms supplying Other Systems_____
- % of significant firms who together are responsible for 80% of the market cell_____

* What do you think of

- Total firms supplying EDP Systems_____
- Total firms supplying Other Systems_____
- % of significant firms who together are responsible for 80% of the market cell_____

* As sources of names of such firms we have

- Data Pro_____
- Magazine Advertisements_____

* Do you have any others_____

(B) Systems houses which provide assembled systems to user specifications

* We have some data which shows

- Total firms supplying EDP type systems_____
- % of significant firms who together are responsible for 80% of the market cell_____

* What do you think of

- Total firms supplying EDP type systems_____
- % of significant firms who together are responsible for 80% of that market cell

* As sources of names of such firms we have

- Magasine Advertisements

* Do you have any others

(C) Computer service companies who provide small business systems or CRT's to their customers

* We have some data which shows

- Total firms supplying these systems, or terminals___
- % of significant firms who together are responsible for 80% of the market cell_____

* What do you think of

- Total firms supplying these systems or terminals____
- % of significant firms who together are responsible for 80% of the market cell_____

* As sources of names of such firms we have

- Data Pro
- Magazine Advertisements, Articles

* Do you have any others

(D) Terminal leasing companies such as Western Union Data Services and RCA Service Company

* We have some data which shows

- Total firms supplying these terminals_____
- % of significant firms who together are responsible for 80% of the market cell_____

* What do you think of

- Total firms supplying these terminals_____
- % of significandt firms who together are responsible for 80% of the market cell_____

* As sources of names of such firms we have

- Magazine Advertisements
- Do you have any others

(E) Mini computer manufacturers

* We have some data which shows

- Total firms supplying other manufacturers terminals
- % of significant firms who together are responsible for 80% of the market cell

* What do you think of

- Total firms supplying other manufacturers terminals
- % of significant firms who together are responsible for 80% of the market cell

(F) Are any other catagories of firms supplying end users with terminals

2) How do these third party firms do business with their customers?

* Who do they sell to (is their market organized by)

Geographical Region

Industry Specialties

Small Companies (primarily)

Large Companies (primarily)

Other

* How do they sell (by percent)

  Direct Salesmen

  Reps

  Distributors

  Other

* Is there a difference in the above answers for

  A. OEM's selling a product

  B. Systems Houses

  C. Computer Service Companies

  D. Terminal Leasing Cos.

  E. Mini Manufacturers

3) Where do these third party firms obtain CRT terminals for their systems (by percent)

- From CRT Terminal manufacturers
- From distributors such as Schwebber
- Drop Ship, Purchased by customer of system (systems houses, hardware integrators)
- From supplier of mini computers (even if the display is not manufactured by the mini vendor)
- Other

* Is this different for different types of third parties

  A OEM's selling a product

  B Systems houses

  C Computer Service companies

D Terminal Leasing companies

E Mini manufacturers

4) How do you feel about the efficiency of various ways to reach the third parties for teletype compatible CRT sales

* Direct salesmen calling in person

- Major prospects

- All prospects

* Manufacturers Reps

* Distributors of Parts

* Advertising

* "Terminal Stores" similar to telephone stores

* Ingluence users the third party is selling to, how

* Other

* Any differences for different types of third parties

5) What are typical contractual arrangements in dealing with third parties

* Quantity discounts

- How much discount/quantity

- How are quantities measured

* Shipments in a year

* Quantity in a shipment

* Payment terms

- C.O.D.

- Extended payment

6) At what sales quantity is customization offered

- Is it important

7) How are warranties handled

8) Any other key terms and conditions

9) How do you see the current price and the trend of price changes for the following type of teletype compatible displays during the next five years

A) Minimal features-no editing-transmit character by character

B) Insert and delete a line-scrolling up only (lose information when scrolling)-Transmit data by block

C) More sophisticated features-Insert and delete a character or a line-Scroll up or down (saving information)-Field protect, transmit data by block-polling

10) Which of these display types (A, B, C) will be dominant by 1982, will this vary by market

11) Will the price discount pattern for large quantities change, as a function of the display features.

12) Is the initial price for single quanties inglated to allow for deep discounts

13) How much sales is received from

* Average salesman

* Top salesman

14) How are salesman compensated

- Salary %
- Commission %

15) What are earnings of

- Top saleman
- Average salesman

16) How big a problem is salesman turnover

17) What is profile of ideal salesman

* Background

* Personality

* Educatikon

INPU

18) What do you think is the most important factor in selling CRT's to the third party market

- Price
- Features
- Manufacturer Name
- Maintenance
- Other

19) Who do you consider key teletype compatible CRT vendors, what is their market share

20) Let us compare market sizes

	Input Estimate		Respondee Estimte	
Market	1977 CRT Shipments	Growth	1977 CRT Shipments	Growth
OEM's assembling equipment into systems				
Systems Houses producing systems to user spec's				
Computer service companies				
Terminal leasing companies				
Mini manufacturers				
Hardware integrators				

21) How long are CRT's used before they are retired? What happens to them?

Third Party Vendors

We are performing an analysis of the use of Teletype replacement CRT terminals by the third party vendors. They obtain terminals from vendors and incorporate them in systems or service offerings for end users.

Section I
As a third party vendor there are some questions we would like to ask regarding your choice of terminals and vendors.

1) How do you rate the importance of the following factors in deciding upon which terminal to buy (assuming all terminal features are equal)

factor	importance	comment
* Price		
* Discount policy		
* Payment and credit terms		
* Warranty		
* Field maintenance		
* Willingness to customize		
* Willingness to drop ship		
* Reliability		
* Delivery schedule		
* Willingness to train your staff		
* Willing to supply "loaners"		
* Other		

2) Looking at these factors in more detail

* What price differential would cause you to switch vendors (all else being equal)

* What quantity discount policy do you think is ideal

* How are you now paying for terminals (discount policy)

* What payment terms (as differentiated from discount) are ideal? Why?

* How important to you is field maintenance by the terminal vendor? Is it equally important in all U.S. regions?-is a system composed of field replacable modules an advantage

* How do you service your products, what is the ideal service arrangement you want from your CRT vendors

* What areas of terminal customization are important?

* How would you take advantage of the vendors willingness to drop ship?

* How do you measure reliability?

* What delivery schedule do you consider reasonable?

3) How important to you is the terminal vendors' image? How much would you pay for a major vendor's name?

4) What advice do you have to offer terminal vendors so that they might be able to better serve your needs?

5) How do terminal vendors sell to you?

- Direct Salesmen
- Reps
- Distributors
- Other

6) How do you prefer the terminal vendors to sell to you?

7) Who decides which terminal you will buy?

8) How long is the decision time to choose a terminal for a product or service?

9) What is the lead time expected to receive a terminal under an existing OEM agreement?

10) What price are you now willing to pay for the following features of teletype compatible displays (quantities of 10 and of 100)

* A) Minimal features-no editing-transmit character by character

* B) Insert and delete a line-scrolling up only (lose information when scrolling)-transmit data by block

* C) More sophisticated features-insert and delete a character or a line-scroll up or down (saving information) -field protect-transmit data by block-polling

* Which of these features meet your needs best?

* What features are most important for you?

* What is the value to you of being able to field upgrade the CRT?

Section II

11) Please classify your business type

- Systems house end product__ turnkey__ hardware integrator__
- Services company data services__ leasing__
- Manufacturer minicomputer__ mainframe__

12) Business size characteristics

* Number of employees
* Sales ($/yr.) growth
* Number of systems installed
* Number of CRT terminals delivered

13) What are your key products?

14) What is your major competition? How many firms in U.S.?

15) Who provides the software for your system?

* System software
* Application software

16) What is the price of your system?

* Maximum
* Minimum
* Average

17) Describe the markets to which you are selling, by industry, geography, or other parameters.

18) What is your selling approach? (prospect identification, emphasis, strategies, knock offs, etc.)

19) How would you split into groups (by percent) your new customers in terms of their former method of operation?

* Manual
* Remote computer service
* Batch service
* In house computer
* Other

100%

20) How do you see this trend of new customers continuing in the future? (Where will new sales come from)

21) What concessions (if any) will have to be made in order to sustain continuing growth?

* Higher Discounts
* Lower Prices
* Better support
* Improved software
* Other

22) What is your current system population in units?

* Free standing
* Connected to a mainframe (communications, hard wired)

23) What percent of units are

* Sold
* Full payout lease
* Operating lease (1,2, or 3 years)
* Rented (monthly)

100%

24) Who performs field maintenance on your equipment?

25) Who does customers application programming?

26) How many sales offices do you have?

27) How are salesmen compensated (by percent)?

* Comission
* Salary

28) Average compensation per year

29) Earnings of top salesman per year

30) What technological advancements do you anticipate, and what will be their impact on the markets which you serve?

31) What trends do you forecast for your products? Will they be upgraded in the field?